
IV. *An Account of an Experiment, confirming one lately made, touching the Production of Light, by the* Effluvia *of one Glaſs falling on another in Motion. By Mr.* Fr. Hauksbee, *F. R. S.*

HAving obſerv'd that the *Effluvia* of Glaſs were capable of Exhibiting a *Phænomenon* falling on an Exhauſted Glaſs in Motion, as if rub'd by a viſible Solid Body, (as I lately ſhow'd before this *Honourable Society* ;) I thought a farther Confirmation of the ſame, would not be unacceptable. In order thereunto, I deviſ'd the following Experiment.

I took a large Receiver in form of *Fig.* 2. *a. a. a. a.* Within the Body of which, I fixt another in manner and likeneſs of *b. b. b. b.* their *Axis* lying parallel to the Horizon, and were fixt one within another at *c. c.* The outward ſurface of the inward Glaſs was at leaſt an Inch diſtant from the inward ſurface of the outward one ; and were turn'd by two large Wheels, whoſe Bands related to the ſmall Wheels *d. d. d. d.* fix'd on their *Axis.* The inward Glaſs was firſt Exhauſted of its Air ; then being fixt, as before deſcrib'd, I order'd that Wheel only to be mov'd, which gave Motion to the great Glaſs ; thinking that when the *Effluvia* of that Glaſs, by the Application of my Hand upon it, ſhould reach the other, notwithſtanding it was at reſt, it would nevertheleſs be affected by it and give a Light ; which accordingly fell out as I expected, ſpreading its ſelf in flying Branches all over. Then cauſing the other Wheel to be turn'd, the

Light became more conſiderable ; and, I think, the greateſt as yet that has been produc'd in any Experiment made on this Subject ; and doubt not, but would have been more ſo, had the inward Glaſs fitted nearly to touch the inward Surface of the outward one ; the *Effluvia* of which, (as it ſeems to me) would then be capable to act with more Vigour on the Exhauſted moving Receiver. But to return : I caus'd both the great Wheels to give Motion to the Glaſſes one and the ſame way, with as equal a Velocity as they could ; yet I did not diſcover but the Light was then as ſtrong, and continuing, as when their Motions were made Reverſe : So that I do not perceive that a Diſenting Motion from each other does any way contribute to the *Phænomenon* ; but Motion it ſelf, without being preſcrib'd by Rules, (as this Experiment ſeems to inſinuate) is found abſolutely neceſſary, as indeed the whole Courſe of Experiments on this Head abundantly confirm. I farther obſerve, that notwithſtanding the *Effluvia* ſeem'd to be equally diſtributed on the outward Surface of the inward moving Glaſs, yet the Light was moſt vigorouſly apparent on that ſide of it neareſt the Attrition : And when the Motion of the outward Glaſs was ceas'd, or the inward one, and the other in Motion, (for upon trial I found very little Difference either way,) the Light would continue to appear a conſiderable time within the Exhauſted Glaſs, till the *Effluvia* of the other, were no longer capable to act with ſo much ſtrength, as to lay hold or affect the inward one. I likewiſe obſerv'd, that after both Glaſſes had been in motion for ſome time, and the Hand apply'd all the while on the outward one, that then the Motions ceaſing, and no Light appearing, it was but approaching my Hand near the Surface of the outward Glaſs to produce Flaſhes of Light like Lightning in the inward one, the *Effluvia* ſeeming then to be more vigorouſly puſht upon it by the approaching Hand. Now how theſe *Effluvia* of Glaſs become capable to Act or Perform the Office of a Solid Body, or why ſuch a *Medium* is requir'd in the inward Glaſs to produce the Light, I think are worthy the Conſideration of this Society. For I have try'd, that upon letting in a little Air, the Appearance of it dy'd, nor could it then be recover'd in that ſtate altho' diligently endeavour'd.

V. *An Account of an Experiment made before the* Royal Society *at* Greſham College, May 28. 1707. *Touching the Difficulty of Separating two Hemiſpheres, upon the injecting of an Atmoſphere of Air on their outward Surfaces, without withdrawing the included Air. By Mr.* Fr. Hauksbee, *F. R. S.*

SInce the greateſt Satisfaction and Demonſtration that can be given for the Credit of any Hypotheſis, is, That the Experiments made to prove the ſame, agree with it in all Reſpects, without force: As in that of Sound, the Air is prov'd the proper Vehicle to communicate it, not only by its leſſening according to the degrees of Rarifaction; but by its increaſing according to the Degrees of Condenſation. Now altho the Preſſure of the Air is evident by a number of Undeniable Experiments made by the Air Pump; Yet the ſeveral Phænomena of which being liable to be accounted for by the *Suctioniſts*, and *Funicularians*, to proceed from ſome (uninrelligible) Internal Cauſe; therefore to put the Matter of Fact (I think) paſt all Diſpute, I deviſ'd the following Experiment.

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Fig: 1.

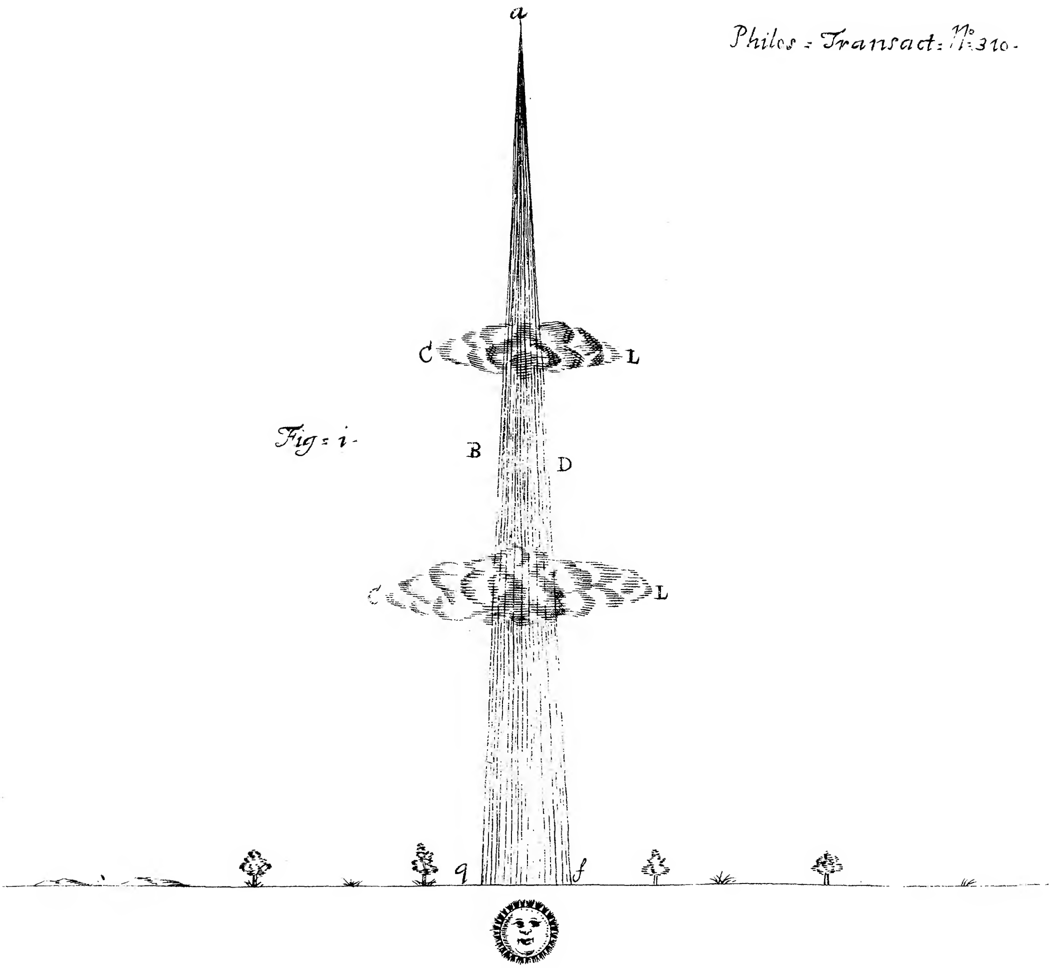

Fig: 2.